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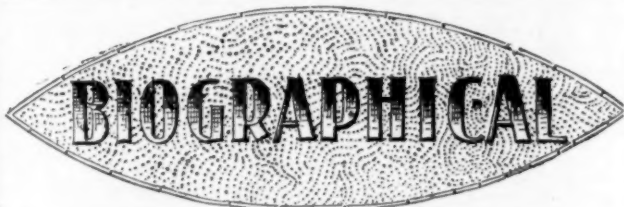
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No. 32.



MR. H. E. HILL.

The subject of this sketch was born at Port Burwell, Ont., Canada, Aug. 8, 1865. His interest in bees dates back to early childhood days, his father being a progressive bee-keeper of that time, making and using sections holding about two pounds each as early as 1868. Bleak lake winds and winter losses, or, rather, spring losses, rendered the business unprofitable in that locality, and it was accordingly abandoned a few years later, but the admiration and keen interest awakened so early in life still clung to him, and his father's books and papers, and all other available literature relating to bee-culture afforded a favorite pastime, while those throughout the surrounding country who possessed several colonies of bees, and "knew all about them," were objects of envy, and young Hill lost no opportunity to be around in their way and bore them with questions; his delight was to be given some kind of a job to do about the bee-work, and after more than 20 years of study and practice there is now no part of the work with bees that does not give him the same pleasure and fascination.

Mr. Hill's actual bee-keeping began in 1880, when his father presented him with two colonies and a year's subscription to the American Bee Journal, since which time he has been a constant student of apiculture, and a reader and admirer of the "Old Reliable."

With four years' work as an amateur, came a keener realization of the depths of mystery and consequent necessity of knowledge in order to become proficient.

In 1884, with his parents, Mr. H. moved to Pennsylvania, taking two colonies of bees to test the new field, which were increased to six that year; but little honey was taken, as the locality afterwards proved to be one of the poorest in the State.

In 1885 arrangements were made by which he was to spend the entire season in the Woodstock (Ont., Canada) apiary, and he returned to Canada in April, giving his time for the following six months in exchange for instruction under Mr. J. B. Hall, and the proudest moment of his life, probably, was when he received a certificate of his ability as an apiarist from Canada's comb-honey king.

The following spring, with 30 colonies in nondescript

hives, after transferring them to uniform frames, he secured one ton of section honey, 700 pounds of extracted, and increased to 83 good, strong colonies, which he wintered without loss—at Titusville, Pa.

Mr. Hill's anxiety to familiarize himself with the honey-resources of the whole country, led him to apply for a position in reply to an advertisement for an apiarist to establish an apiary in the West Indies, and his recommendation from Mr. Hall was instrumental in securing the job, against nearly 100 other applicants, and he accordingly sailed for Cuba on Oct. 16, 1886, returning to Pennsylvania the following April, and resuming charge of his little apiary; but four successive failures of the honey crop in that field caused him to dispose of his bees.

In 1887 he received a letter from his Spanish employer in Cuba, saying that he desired him to return and take charge



H. E. Hill.

of his bee-business, in this language: "Knowing your disposition to do right, I leave you to make your own terms; but I want you to resume charge of the business." This letter, in 1891, which was sent with an application for a position to Wheeler & Hunt, of Redlands, Calif., doubtless had some influence in Mr. Hill's favor, as he secured a very good place with them, which gave him an insight into California re-

sources and methods during the seven months which he remained on the Pacific Coast, as this firm were probably the largest owners of bees at that time in the United States, operating about 2,000 colonies; the management of several apiaries devolving upon Mr. Hill. Circumstances which necessitated leaving the employ of these gentlemen were a source of regret to himself as well as to employers, as evinced by letters from both members of the firm requesting his return.

On Dec. 28, 1889, Mr. Hill was married to Miss Kate A. Nelson, of Titusville, Pa., and on Dec. 2, 1890, a son came to cheer and brighten their home; but the joy of his presence was cut off by death seven months later, while the father was away in California; this shock, added to the already ill-health of Mrs. Hill, rendered his return to her side imperative, as her health continued to decline; and in order to remain at home until she might be restored to health, he secured a few colonies of bees and re-engaged as salesman and frame-maker in an art store, with a former employer whom he had served during a part of the four years of failure of the honey crop referred to in the foregoing, prior to his California pilgrimage. Continuing for two years in this capacity, he then, in partnership with his employer, established a job printing office, to which was added, a few months later, the necessary equipment for the publication of a 6-column folio newspaper, issuing the first number Dec. 22, 1892, which was continued weekly until January, 1894, with a good subscription list and liberal advertising patronage, when Mr. Hill sold his interest, and, on Feb. 1, started South to look up the honey-producing prospects in Florida. After spending several weeks traveling in the State, being satisfied with the outlook as a future location, he returned to Pennsylvania, interested his present partners, and organized the "South Florida Apiary Company."

October 1st found Mr. Hill again in the "Land of Flowers," and there (for the little company) he purchased 70 colonies of common stock and 50 nuclei of 5-banded, to which he added two colonies of fine 3-banded Italians at very "fancy" prices; selected a location at New Smyrna for an apiary, but had not yet taken all the bees to their new home when the unprecedented freeze of 1894 blasted every hope of a honey crop for several years. While yet undecided as to a future course, by feeding several hundred pounds of honey they were carried along with slight loss until July, when cabbage-palm bloom came to their rescue, and in August were moved south to the St. Lucie river, to await the blooming of pennyroyal in January, and there left in charge of a resident bee-keeper while Mr. H. returned to Pennsylvania, to earn expenses in the old "print shop."

Mr. Hill returned to Florida last January to take charge of the business again, but his courage to "stem" the tide of obstacles which beset the industry on the East Coast since the great freeze, took a drop to several degrees below zero when he found foul brood in two colonies. To these, however, he promptly applied the Sir John Moore method (burial at the dead of night), with highly satisfactory results, as that was several months ago, and not a sign of the malady has developed in any of the others; hence, newly awakened hope and determination, assisted somewhat by a small crop of honey already secured, with some prospects of getting more at their apiary in Indian river narrows, from mangrove.

The management of the company affairs devolves entirely upon Mr. Hill.

Being one of a large family, reared upon a dairy farm, and the poor health of his father, rendered it quite necessary that the elder children (H. E. being the second) assist in the farm work, so that the education which he coveted, ended in a common country school; that which he has since acquired being the result of diligent application to private study at every opportunity. When but 10 years of age, it fell to him to herd cattle on his father's farm, before fences could be con-

structed; this he continued to do for three summers, which afforded ample time for a thorough perusal of Thomas' textbook of bee-keeping, and other study. Twenty years have elapsed since those days, and in a practical way he is still studying bees, realizing to-day that he has yet more to learn than seemed to confront him then, yet with his rather wide range of experience—from the Georgian bay to the Caribbean sea, and from the Atlantic to the Pacific, aggregating over 20,000 miles of travel wholly in the interest of bee-keeping; observing various methods in different lands, his contact with hundreds of bee-keepers, and almost every race of bees known in America, and some practical experience with varieties of which but little is generally known; with *Apis dorsata* and *Florea* in "pickle" in his private collection; having observed the busy workers on 16 Quinby frames in a glass hive which occupied a corner of his dining-room for years, and roughed it in the mountains and wilds of the South, and loaded cars with

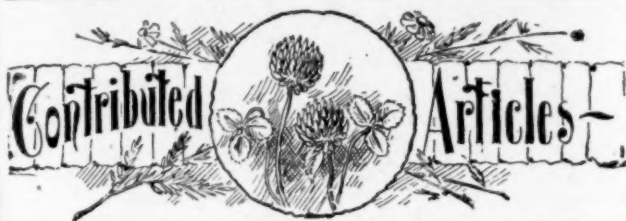


Master Lowell G. Hill.

comb and extracted honey—he begins to regard himself as tolerably familiar with the various phases of honey-production. And if you can furnish him with the address of another man in America, of his years, who has had a more diversified bee-keeping experience, you would thereby incur his lasting obligation, as he might then condole with a co-victim of the bee-fever.

On March 4, 1893, another baby boy—Master Lowell—came to occupy the vacant chair in their bereaved home; so, to paraphrase Mr. Choat, as Mr. Hill's parents are yet both spared to him, there is no man whom he envies, and the only one he would wish to be, if he were not himself, would be the present Mrs. Hill's second husband. A FRIEND.

A New Binder for holding a year's numbers of the American Bee Journal, we propose to mail, postpaid, to every subscriber who sends us 15 cents. It is called "The Wood Binder," is patented, and is an entirely new and very simple arrangement. Full printed directions accompany each Binder. Every reader should get it, and preserve the copies of the Bee Journal as fast as they are received. They are invaluable for reference, and at the low price of the Binder you can afford to get it yearly.



Bees to Go with Queens in Shipping.

BY G. M. DOOLITTLE.

A correspondent wishes me to tell something about the bees which should be placed in the shipping-cages with queens which are to be sent through the mails, as he is about to embark in the queen-business, and wants to know whether there is any difference as to the age of the bees, or whether an indiscriminate taking of them will answer every purpose; and ends his letter by saying, "Please tell about these things in the American Bee Journal."

As I have made the sending of queens by mail a study for many years, sending queens to all parts of the United States and Canada, as well as to many foreign countries, where they were from 12 to 50 days enroute, I will say that there is a difference in regard to the bees that go with the queen, as I have proven by the reports coming back to me.

I have used bees that were all old, with very poor results. Why these old bees were used was because in certain cases where a colony had been some time queenless, and the brood from the then laying queen had not hatched out, I was obliged to use such bees as were in the colony at the time of taking away the queen. In almost every instance where bees that were over 30 days old were used, a report of "both bees and queen were all dead, or "queen came alive, but all of her attendants were dead," was the result.

With very young bees I have had very little better success than with old ones, the reasons for using these young, white, fuzzy things being that at the time of the shipment of the queen, her bees had only just begun emerging from their cells, and being afraid to take the few very old bees which remained in the hive, I used those just hatching.

To illustrate more fully: A bee-keeper ordered three queens, and after believing I had found out where the trouble of loss in shipment occurred, I placed in one of the cages all old bees to go with the queen. This cage was marked with a private mark. My circular stated that I guaranteed the safe arrival of all queens, on the condition that when the cage arrived, the bees were to be carefully examined through the wire cloth, and if the queen was dead, the cage was to be returned to me with contents unmolested, when I would send another queen. I made it thus, partly to guard against fraud, but mainly so I could look into any failure on my part in meeting the right requirements for perfect shipment, as I could often find the clew to the failure, in the returned cage. The candy part was the main trouble in former years; but that has been pretty much overcome by the queen candy now made by mixing honey and powdered sugar together until a right consistency is reached, so that the candy will neither harden nor become so soft that it will "run" in the cage. From this digression, by way of explanation, let us return to the three cages.

One was reported as arriving dead, and was returned, while the other two came "without a dead bee." When the returned cage arrived it had the private mark on it.

Again, in early spring, I often have to use old bees, as there is no choice left me when sending queens soon after the bees have been put from the cellar, unless I take bees to go with queens from hives which were wintered on the summer stands, they having bees of right age. As it is some trouble

to get these bees from another hive, and as such bees sometimes have a desire to worry a strange queen, I have sometimes taken the bees which have wintered over from the cellared hives and sent them along; but the loss has been so great that I have resolved never to do it again.

In cases of forming a nucleus with only young bees to receive a queen (as such very young bees will nearly always accept any queen given them), and having an order for a queen at about the same time, I have taken these young bees to go with the queen, as well as in cases spoken of above, and cages so sent with young bees and marked, have gone with many dead bees, where they were not returned as altogether dead. In this way I have watched results until I have found that bees from 6 to 15 days old are the ones which stand the journey best, especially if a long one, like going to California, Washington, Northwest Canada, the West Indies, Sweden, New Zealand, Australia, etc. Having learned what bees to select, I now rarely lose more queens in going to these distant points, unless I except New Zealand and Australia, than I did when the distance was 500 miles or less.

In selecting bees I take those which have flown once or more, and which are small and slim, and not those whose bodies are distended with excrement, as all young bees that have never flown are extended to a greater or less extent, with the pollen consumed in their larval state. By a little careful watching of bees as the days go by, after they emerge from their cells, it is not difficult to tell the age of a bee, very nearly at least, by its movement and color; and in addition to this we can be guided in our selection, on account of the bees of about the right age to use in sending queens being the first to thrust their heads into the cells of unsealed honey when the frame on which they stand is being removed from the hive. Beside this helping us to know which bees to select, bees in this position are very easily picked off the combs, as the wings stand out from the body.

The item of having queens reach their destination in good order every time is quite an important one to all who ever think of sending or receiving a queen. So far this year, out of the hundreds sent, I have not had a single report of one going dead.



Cure for Robbing—Laying Workers, Etc.

BY S. A. DEACON.

I don't know who it was that suggested some time ago in the Bee Journal, painting about the flight-board and front of the hive to stop robbing; but whoever he was, he has proved himself a benefactor of his species, and deserves the thanks of the fraternity. I have just tried it with marked success. Will others please report results of the application of this cure for one of our worst ills? for—and it is unaccountably strange—what seems to succeed with one often fails with another.

GETTING RID OF LAYING WORKERS.—The circumvention of that curse—the laying worker—has hitherto been considered—judging from bee books and journals—a consummation so difficult of attainment as to lead us to believe that the game is hardly worth the candle. She—the laying worker—is said to be non-amenable to any of the arts, dodges and devices of the most skillful apiarist. We are told that laying workers determinedly refuse to accept either queens or cells, once they have seized the reins of government. Heddon—in his "Bee-Culture"—tells us that he has found an easy way of disposing of them, viz.: "Insert two combs of hatching bees. Two days after, give a frame of eggs and larvæ, and on the following day introduce a queen, or give a queen-cell." Now, I think I may say I have discovered a slightly more easy and expeditious method of restoring the monarchical system; it is this: Dredge the "republic" well with flour, scented with—well

with peppermint, or anything else; I scented mine with a few drops of Grimshaw's apifuge, because it happened to be handy, but I fancy peppermint would do as well. Then dredge the queen, drop her in, and—all's well! At least so I have found it. Will the brethren please report results on this matter, too?

MIDBAR IN LANGSTROTH FRAMES.—I was lately a party to the following discussion, and which became a very warm one, bets being freely offered on both sides. The matter at issue was as follows:

One party happened casually to suggest dividing Langstroth frames midway by a thin, narrow bar, similar in dimensions to the bottom-bar; he did not claim any very great advantage therefrom, other than safety in traveling, for which purpose, of course, wiring is usually resorted to. Anyway, his suggestion was met with the statement, and very confident assertion, that, assuming the upper half to be full of comb—right down to this dividing bar—the bees, instead of continuing their comb in the same direction downward, *i. e.*, on exactly the same vertical plane as that part already completed, will divert the same, and construct the lower half in a different or irregular direction, and *not* as a direct downward continuation of the upper half, building combs perhaps on the lower half right across the frames. This central bar is to have no guide or starters.

Now, it would be interesting to know what the opinion would be of a select few of our experienced "old hands." Of course it could be easily decided, a few days would suffice for the purpose; but that's not the thing—we would like to hear of opinions off hand; hereabout opinions are about equally divided. As to the *utility* of the suggestion, we will put that aside, though I do not see why such extra rigidity should not be given to large frames.

Don't let's have any wagering on the matter—betting's sinful, but *opinions* are "respectfully solicited."

And now, while we are on this subject of giving extra rigidity to deep frames, I might say that Mr. J. E. Earle had, in the Australian Bee-Bulletin of Sept. 24, 1895, page 150, an article in favor of small hives, and, in particular, of one he has adopted, measuring 12x12x12 inches. This should help greatly to settle the matter so long under discussion—the battle of the hives. For my part, I believe Mr. Earle is right; such deep, narrow brood-chambers would naturally concentrate the heat so essential to the rapid production of honey, sending up a constant stream of it as through a big pipe or chimney, and more nearly approaching to the arrangement in a colony's natural state where a big hollow tree is selected for its domicile.

I think there is a great deal of common sense in Mr. Earle's "cube-foot" or "pillar" hive, as I would take the liberty of naming it, and I fancy the time is not far off when it will become popular. In such deep frames the idea of a middle bar might be utilized to advantage if—but let us first hear the opinions on this matter, and also on Mr. Earle's "cube-foot" idea, of our greater lights. These "pillar" hives would be the return in a measure to the very satisfactory old Stewarton hive.

DO HENS CATCH AND EAT BEES?—Were this made a leading question in the Bee Journal, I wonder how many replies—from Dr. Miller's downward—would be couched in the all too familiar words, "I don't know."

Well, I *do* know. Some hens do contract this disgraceful habit; nor did I become aware of it until to-day. A good 12-month since, on the recommendation of some writer in either a bee-book or in the Bee Journal, I began to combine *poultry* with *bee-keeping*. My fowls have always had the run of the apiary, and I have frequently seen them picking up *dead* bees, but never until to-day did I notice that some of them shamefully take up their stand in front of a hive and

boldly snap the *live* bees off the flight-board. I have just been watching one; she would make a dab, retreat a yard or so with her capture, rub it in the ground and then swallow it; this she would repeat perhaps a dozen times, then take a stroll, and in time come back for another feed. Has this propensity been noticed by others of the brethren who combine poultry and bee-keeping? South Africa.



Methods of Securing and Managing Swarms.

BY HON. R. L. TAYLOR,

Superintendent of the Michigan Experiment Apiary.

The season of 1896, in point of swarming, has been a remarkable one. The bees lightly set at naught all the accepted canons of bee-keepers respecting that function. Lack of great strength had little restraining influence, and abundance of room, even in the brood-nest, none at all.

Swarming began the last of May, continuing just a month, during a very moderate flow of nectar, ending abruptly when that flow was at its best at the height of basswood bloom, though even then the secretion of nectar was very light. Not more than one or two per cent. of the colonies did anything at all in the supers before casting swarms, and many did not wait to fill the combs in the brood-nest. Under such circumstances it is safe to say that it would not be wise to cease efforts to determine the best methods of securing and managing swarms, on account of any bright prospect of speedy success in breeding out the swarming instinct, or even of any satisfactory invention that will practically allay it. Indeed, it is a very serious question whether, if this object could be secured in either of these ways, it would be satisfactory to more than a very small percentage of apiarists.

There are always more or less losses from various causes to be made good, and there is no cheaper or more satisfactory way of doing this than through the increase by swarming. The loss of even a few colonies each winter during a series of unfavorable years, where there is little or no swarming, with occasional failure of queens and lack of stores, often best met by the uniting of colonies, sometimes makes the aggregate reduction in numbers rather startling. Then the serious item of the rearing of queens comes in, which must be done artificially if increase is secured without swarming. No doubt as good queens can be secured in this way as those obtained from cells built and cared for under the swarming impulse, but how few, comparatively, are the apiarists who have the aptitude, skill and punctuality required to do it. Nineteen out of twenty, for one reason or another, would fail, and in these times of financial stringency and uncertain honey crops, they cannot afford to purchase. Besides, it can hardly yet be safely denied that bees receive an impetus to work by finding themselves in their newly-pitched tent, destitute of brood and provisions.

That there are some weighty objections to swarming, if it could be safely repressed, is not to be denied, but these may be reduced to two, namely, the time and labor required for watching and hiving swarms, and the danger of loss from swarms absconding. Some may hold that undesirable increase is another and a more serious one still, but one should be easily able to obviate that, and indeed thereby reap a decided advantage. It is only a question of the disposal of the brood in the hive from which the swarms issue, and that is generally, especially in early swarming, very valuable. To accomplish this, it is not necessary, as might be inferred from some discussions of the subject, that the brood, when hatched or before, should be returned to the identical colony that produced it; indeed, it may usually be used with decidedly greater advantage in other ways. There are always at the opening of the honey season some colonies that are not up to the strength required for the best work in the supers. Let

the hives full of rapidly-hatching brood be distributed among such deficient colonies as fast as they can be obtained, first driving out of each all the bees left behind, in the hive which with its swarm is, or is to be, put on the stand. Thus, in a few days, if swarming continues, all may be got into excellent condition.

Frequently, also, there are colonies out of condition on account of being possessed of superannuated or otherwise worthless queens. Destroy such queens as fast as hives of brood can be obtained, and place one on each now queenless colony, and in a few days it will be rejuvenated both in its strength and its queen. In some of these operations the advantages of a horizontally-divisible brood-chamber are especially apparent, for if one wishes to help two colonies with the brood of one it can be done without extra labor, or if one wishes to rear a few surplus queens to meet emergencies, without driving out the bees remaining after the swarm issues, by simply dividing the brood-chamber, he may secure two queens as easily and as cheaply as one.

Other ways of disposing of the brood thus obtained through swarming will occur to every one in practice, so that soon instead of deploring its abundance one will be likely to wish for more.

There is one principle that is valuable in this connection which I should recall before passing, and that is, that a colony having a laying queen of the current year's rearing can be pretty surely relied upon not to desire to swarm, no matter how strong it may be made within any reasonable bounds; and the same rule holds if it has a virgin queen, if there be not also occupied queen-cells in the hive. This fact may be taken advantage of to safely make some of the strongest possible colonies, and at the same time the most profitable ones, notwithstanding the notion which some cherish (but without good reason, I believe) that the possession of a virgin queen renders a colony unprofitable for comb honey.

How best to minimize the disadvantages of swarming which give rise to the other objections I have mentioned, is a somewhat more difficult matter. The absconding of prime swarms can be almost certainly prevented by having had the wings of the queens previously clipped, which is most conveniently done about the first of May preceding, but, though I have hitherto been strongly in favor of it, and would take as a choice of evils in the absence of the queen-trap, I find it liable in an apiary of any considerable extent where there is little danger of swarms clustering out of convenient reach, to one valid objection, and that is, that swarms usually remain a tantalizingly long time in the air, giving an unnecessarily pressing invitation to other swarms, and perhaps virgin queens, to join them, thus complicating the matter of successful hiving. In small apiaries this objection would not have the same validity, but in any case there is first the danger of the loss of valuable queens, and then in nine or ten days, in the absence of the apiarist, the loss of powerful swarms with virgin queens, so I now consider the queen-trap indispensable unless one is willing to watch his bees continually during the swarming season, and even then it is a great convenience.

For this purpose, the trap should be so made that the queen once in it cannot return to the hive. This enables the apiarist to determine, with the exercise of a very little attention, whether a swarm has issued during his absence from any given hive or not, by the conduct of the bees and the greater or less cluster remaining with the queen in the trap. If a swarm has issued and returned, usually the trap is found full of bees, or nearly so; in such case I return the queen and bees to the hive and readjust the trap with the expectation that in a day or two I shall discover them making their next attempt, or, if I had no such expectation, I would shake out enough bees to make a good swarm and hive them with the queen in the ordinary way.

A trap full of bees at the entrance of a hive from which the prime swarm, or at least the old queen, has been taken, indicates that the young queen has attempted to issue; if the trap has but few bees, it shows that the young queen has attempted to take her mating flight, or perhaps sometimes that she has got into the trap in endeavoring to escape from a rival. In either case, swarming is over, and the trap should be removed and the queen returned, unless it is certain the colony still has one.

It is best then, I think, to keep traps on all colonies likely to swarm, removing them as soon as the danger is over, being particularly careful on this point in the case of those having virgin queens. When a swarm is discovered issuing, remove the trap, thus allowing the queen to go with the swarm, which induces speedy and perfect clustering, when it may be secured in a moment in a basket.

A light pole to which a basket is attached near the farther end, serves both to shake out and secure most swarms that cluster out of reach of the hand.

For the highest success in the production of comb honey, strong swarms are desirable, and hiving swarms on the old stand not only conduces to their strength, but has also a strong tendency, often almost prohibitive, to prevent after-swarms. However, with the methods I use there is a limit to the profitable strength of swarms. If they exceed seven or eight pounds in weight, there is apt to be discontent and an early preparation to swarm again, even if they do not persist in attempting to abscond. This determination to abscond is a difficulty which I have had to encounter very frequently during swarming seasons, owing principally, no doubt, to the small size of the brood-chamber which I feel compelled to give swarms. After testing different plans, I have at last been almost entirely successful in meeting this difficulty by giving the swarm at first a double brood-chamber and removing the lower section in two days. This plan has proved a decided relief in the management of swarms.

Little need be said in addition to meet the objection made against swarming on account of the time required for attending to it. Most prime swarms issue between 9 o'clock a.m. and 12 o'clock m., so that, with the traps, three hours a day answers very well. In case of necessity, even less time may be made to serve without serious loss, even to so little as three hours every third day.

It is possible that there may be a little danger of swarms going away with virgin queens on their mating flight, but it is not great, for such queens are distasteful to prime swarms, though any laying queen is acceptable.

If a prime swarm and an after-swarm with their queen unite, the young queen will usually be found balled, and it is seldom worth while to separate them because there will almost certainly be sufficient of the prime swarm with the young queen to destroy her or break up the colony.

Some complaint is made that queens escape through the perforated zinc of the queen-trap. The perforation in my traps are $5/32$ of an inch, and no queens escape.—Review.

Lapeer, Mich., July 7.



Non-Swarming in Large Hives.

BY DR. C. C. MILLER.

I have been very much interested in what has been said about the lack of swarming in large hives as used by the Danants, and while it may partly explain why bees should swarm more with 16 Langstroth frames in two stories there are still some mysteries in the case. The reason given for the swarming with me is that the queen is loth to go from one story to the other, and with the large Quinby frame there is no such difficulty in the way. That looks reasonable, and yet under

the circumstances I can hardly feel that it fully explains all. Let me explain a little more as to my two-story hives: When the one story was well filled I added a second story, putting half the brood in the upper story directly over the other half in the lower story. The queen seemed to go readily from one story to the other, as was shown by the fact that always young brood, and perhaps eggs, could be found in either story. But supposing the going from one story to another did make any trouble, there were the empty frames in each story right beside the brood—why didn't the queen occupy them instead of swarming?

It is only fair to add that for years I have each year kept a few colonies in hives three to five stories high, and in these piles of hives I have never known a colony to swarm. Some of them have been immense colonies, keeping 14 frames filled with brood, but with no offer to swarm. I don't understand why these should refrain from swarming, even though sometimes fairly crowded, and yet the colonies in two stories swarm with plenty of empty comb. But then there are lots of things I don't understand about bees. Marengo, Ill.



Fifteen Years' Experience in Bee-Keeping.

BY MRS. SALLIE E. SHERMAN.

(Continued from page 484.)

The study of bee-culture opens wide the book of Nature, bids us look in, quaff, and want more. Ah! what a precious study it has been to me. It has opened avenues of thought never before dreamed of. Life is more to me than it ever could have been without the little, busy bees. But, alas! all things earthly have an end. So I and the precious, little, God-given, nectar-gathering honey-bees have separated. They are gone—all gone. Alas! it is true, I own not a single bee. They have gone to a new home, and I, too, will very soon have to leave this dear, sweet, little home. A few weeks more, and I, too, will leave for Dallas, my future home.

In the fall of 1895, the Gordon sisters, two estimable maiden ladies (one of them born on my birthday, seven years later), being tired of the dress-making business, and still wanting something out of which to earn a living for themselves and be able to care for their aged mother in her declining years, hearing that my bees and fine poultry were for sale, came to see me, and purchased my whole outfit. So that is the way the Texas Bee and Poultry Yards came to be located $1\frac{1}{2}$ miles north of Belton. I wish to say now and here that they are thoroughly reliable and trustworthy, and orders sent to them for anything in their line will receive careful and prompt attention. They guarantee safe arrival and full satisfaction in every instance.

Oh! but didn't they have a good time getting every thing moved. There were 56 colonies of bees, quite a number of them in hives three stories high; lots of empty hives, extractors, etc., too numerous to think of itemizing; 80 chickens, most of them full bloods. It took seven two-horse wagon-loads—not a single frame of which was broken. Mr. Jones, the brother-in-law of the Gordon sisters, did all the packing and moving except one wagon-load. All he had to do to get people to give him the road was to call out, "Bees, live bees!" then he could keep right in the center of the road without either turning to the right or left.

One day, on his trip home, one of the hive-covers slipped a little, and quite a lot of bees got out before he noticed them, and not having the smoker with him, as he should have had, he could not get them back; so, after closing the hive so that no more of them could escape, he proceeded on his journey with, he said, "a small swarm hovering over the wagon." Just then he met a buggy full of negro, "which," he said, "was all, only one"—a fat woman weighing about 300

pounds. He yelled, "Live bees!" She threw up her hands, frightened half out of her wits, saying, "Oh, Lordy, massa, what'll I do? Oh, Lordy, massa, don't let 'em kill me! Git up, here, you old hoss! Git up, here!" Away she went, I suppose rejoicing that her life had been thus miraculously saved by the speed of her "hoss." Mr. Jones reported not having been at all crowded on the streets of Belton, as he passed through.

A few summers back, little "Gordon," Mr. Jones' youngest son, went out with broom in hand to shoo the bees in, as it was raining, and he thought they oughtn't get wet. After shooing them a few times, and they wouldn't go in, he proceeded to push them with the broom. Several stung him; but nothing daunted, he went into the house to tell mamma they wouldn't mind him and go in out of the rain. He wanted her to help him get them in, but warned her that they had "pins that would stick" her!

In my early experience using a smoker, I often found just at the time I needed it most it would be out. By some means I one day set it down so the nozzle was up. When I wanted to use it I found it was all right. The smoker problem was then solved—no more relighting, etc.

I decidedly prefer a hot-blast smoker. If I, or any one, was stung by the bees, we just scraped the sting out and puffed the warm smoke on for a few puffs, and that was the last of the pain, and no swelling followed, provided the sting did not stay in too long.

I once had a colony of hybrids the most vicious I ever owned. They were near where I had to pass frequently, so it was very annoying, as they would come out in full force on the warpath without any provocation whatever, every time I passed. I soon became tired of that, so I just kept the smoker lighted, and at times all through the day, for several days, I would give them a good smoking. In less than a week I could pass as often as I pleased without smoking them or being molested.

I once had several frames standing by a hive that I was looking through. Suddenly the wind blew up briskly and blew my dress, which had a ruffle on the bottom of it, against those frames, which infuriated the bees to such an extent as I had never before seen, and hope never again to see. I tried to, and did finally succeed, after being severely stung, in getting the hive closed. Not so in quieting the bees. I smoked them vigorously, which seemed only to madden instead of quieting them. I had a pen in which were two large, fat hogs, about 30 steps from these infuriated little monsters. To them they went and began such a war as I have never read of, and hope never again to witness. The strange part of it was, it seemed that their anger was contagious, and that every colony in the yard was on the warpath, all making for the hogs. As the moments passed, matters grew from bad to worse. Well, what I did is much easier asked than answered, for I did a little of everything I could think of in the way of using an abundance of smoke and water, but it did no good at all. If it hadn't been that two negro women came to my relief, and helped me raise the pen so the hogs could get out, I don't know when or where the catastrophe would have ended. I am satisfied that each of the hogs had received more than a hundred stings. It looked as if there were a half-dozen good-sized swarms in and around that hog-pen. My! my! what a terrible time it was. I failed utterly to see any poetry in that whole performance, or even in bee-keeping that particular afternoon.

As for ruffles on my dress, well, after that exhibition I failed to see their utility, so discarded them altogether for bee-dresses.

Hold on, the scene is not yet closed. There is another act in the drama. After the pen was raised, and the hogs liberated, where do you think they went? Well, you'd hardly

guess, so I'll tell you. They made just as straight for the bee-yard as their feet could carry them. My! my! but didn't we have a time. After finally getting them away from the bee-yard or apiary, with my father's assistance, we two managed to keep them away until the two colored women moved the pen about 100 yards from its former location, then we finally managed to get them in, as it was then about feeding time, so we persuaded them to go into the pen with corn. Night soon coming on, the bees quieted down, and by the next morning were all right. The hogs, however, showed where they had been stung for quite awhile, although there didn't appear to be any unfavorable results occurring after the excitement was all over.

At another time in my early experience, wanting some eggs from which to rear fine queens, I went to a colony of very fine Italians for this purpose, hoping to find some in the top or upper story. Not finding them, I replaced all the frames, then removed the top story entire, and proceeded to go through the brood-nest frame by frame, looking closely all the while for the fresh-laid eggs. The last frame rewarded my search, for on it was not only the eggs, but the queen as well, thus showing that they were the ones most to be desired. After removing this frame and replacing most of the others, by some awkwardness of mine I dropped a frame with adhering bees. This angered them terribly, so at me they came to have their revenge. You may be sure they had it, too. This occurred about 2 o'clock p.m. Off and on until 10 that night, I tried to replace those few frames and close the hive, but all to no purpose. Every time they could get sight of me, here they came, still bent on revenge. So I will acknowledge I was defeated.

I was up by daylight the next morning. The first thing on the program was to replace those frames and close that hive. But if you will believe it, it looked as if the whole colony was ready for battle. At me they came. I went to my son's room, woke him, and told him if he would get up immediately and close that hive of bees for me I would give him a silver dollar. Out of bed he bounced, dressed, putting his pants' legs inside his boots, put on a rather heavy coat, beehat, veil, gloves, etc. I tied his gauntlets tightly around his coat-sleeves. In a word, he was bee-sting proof. With smoker in hand he went and closed it all up nicely in less than five minutes. Of course he got his dollar. He still enjoys telling this on me, and laughs about how easily he made that dollar.

One other bee-episode and I will then be through along this line: About two years ago, my brother, who was a colporteur for the American Bible and Tract Society, came to see me. He owned and was driving a very large Norman and Clydesdale horse. After spending a day and night with me, he had occasion to go back the way he had come for a few miles, and wanting to make a good drive that afternoon, I prevailed on him just to take my horse and phaeton rather than his hack, and let his horse rest. To this proposition he readily agreed.

The horse was in an adjoining lot to where I had my bees. There were two gates open so he could go through another lot into a pasture. I never knew just where he was, or just how it happened (I mean just in exactly what part of the lot), but a bee stung him. Of all the rearing, snorting and pitching, I certainly never saw anything to compare with it. He seemed perfectly frantic. He was like a maniac. The terrible part of it was he seemed determined to break down the fence and come into the yard amongst the bees. There was no one to help me. The only thing I could get hold of was a calf rope with which to keep him from breaking down the fence—I on one side and he on the other! Here we had it up and down that fence, the great monster, as he was, throwing himself, so to speak, up in the air, he looked to my frightened eyes as

big as a camel. He would just rear upon his hind feet, and then kick up his heels, looking for all the world as if he was going to turn a summersault backwards.

My! my! what a time we did have, both the horse and I. I don't believe I was ever scared so badly in my life. I am quite sure I never wanted to see a man come as badly as just then, but come they would not. The only human being I could see was a frail little woman who kept hollowing for me to open the gate so as to let him into another pasture. This I finally succeeded in doing, but failed to get the infuriated animal to see it. He finally, however, did see both the other gates open, and through them he went. Instead of going further, he ran around this time, being nearer the bees than at first, but I finally succeeded in getting him away.

I was indeed glad when brother came. I told him of the terrible episode through which I had just passed, his horse being the chief actor in the scene. I told him that we had had a regular circus with only one spectator, and she at a distance. He just laughed heartily, which vexed me, for I knew he didn't realize the great danger I was in. I am now satisfied that not more than three bees had stung the horse—at least that was all we could find any sign of.

Bell County, Tex.

[To be continued.]

Causes of Low Price of Honey.—Skylark, in Gleanings for July 1, has the following to say about the causes of the present low price of honey:

There are five causes apparent to me for the low price of honey:

1. The stoppage of the wheels of industry, and the consequent inability of the poor man to buy any luxury.
2. The glutting of the large city markets, which rule the prices.
3. The perfect helplessness of large producers who are entirely at the mercy of the commission men.
4. The entire lack of union or combination among bee-keepers.
5. Adulteration, that has disgusted people with honey, or, rather, with the foul imitation.

Four of these causes of low prices can all be removed by union among bee-keepers—a national union and exchange. Let it be broad in its scope of defense and protection to bee-keepers. Let defense and protection mean from anything that will injure a bee-keeper's interests in his calling. Make it representative, with annual or semi-annual meetings, the commercial or exchange part of it to be run by a board of directors and a manager. Organize unions or exchanges in each State, on the same plan, to be subordinate to the National, and send representatives thereto. Each State exchange should prosecute adulterators and protect bee-keepers within its own borders, the National Union standing ready to help any State exchange in case of any extraordinary outlay, such as carrying a case up to the Supreme Court of the United States. Each State should distribute its own honey throughout its own borders, and send its surplus wherever the National might direct. This plan would preserve the social character of the meetings, protect bee-keepers from all wrong, kill adulteration, distribute the honey properly over the country, and give large producers as good a chance to sell as small ones.

The Student's Standard.—The "Student's Standard Dictionary," now in preparation by Funk & Wagnalls Company, will contain upward of 50,000 words, and from 800 to 900 pages.

The volume, which will be issued under the supervision of Prof. F. A. March, has been edited by the Rev. James C. Fernald, editor of the department of Synonyms, Antonyms, and Prepositions of the Funk & Wagnalls Standard Dictionary, assisted by a staff of skilled workers formerly engaged on the same undertaking.

The chief feature, one not attempted in any school dictionary, is the incorporation in the "Students' Standard" of the meanings of every word used in the sixty volumes of English Classics, selected by the Commission of Colleges for study preparatory to admission to the chief colleges of the United States.

The type is clean cut and clear, the paper will be of superior quality, and the binding attractive and durable.

OLDEST BEE PAPER IN AMERICA ESTABLISHED IN 1881

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Bee-Association Secretaries are invited to send us notices for their meetings for announcement in these columns. Also, immediately after the conventions are held, forward condensed reports for publication. We shall be glad to co-operate in making your meetings successful.

Who'll Be At Lincoln Oct. 7 and 8? We would like to publish the names of all who expect to go, and the States they hail from. We just wonder what State, outside of Nebraska, will have the greatest number of representatives there. Let us know whether you intend being present, if all is well, and we will begin to make up a list for publication.

Bee-Keeping in Arizona.—The Bee-Keepers' Association of Maricopa county, says the Phoenix Republican, has thus far shipped five carloads (24,000 pounds each) of extracted honey eastward, while in the hands of the Association members there is remaining fully as much more ready for shipment. The price has been thus far but 3½ cents per pound—lower than ever before known, owing to the fact of a fair crop in the East. The California crop, however, is light, and prices for the next shipment are expected to show a material advance. The quality is all that can be desired.

The season has been a peculiar one in many respects. Up to some two months ago the bees had stored scarcely a pound of honey, and bee-men were anticipating a flat failure; but much warmer weather came on, and the bees commenced to work as they have never worked before, and every bee-keeper for the last six weeks has been kept busy. Not only have the bees been filling the combs with honey from the second crop of alfalfa bloom, but they have been swarming to an extent that has almost baffled the attempts of the bee-men to provide the new swarms with quarters. "Considering the number of swarms in the valley," observed Mr. Broomell, of the Association, "I believe a record of 10 carloads of honey in a month is one that has never before been approached."

Despite the extremely and abnormally warm weather there has been no trouble from melting comb, and the bees are free from disease.

It is anticipated that by fall time, another 10 carloads will have been produced, giving the valley its top record for production.

The Sale of Honey in Belgium.—The Farmers' Advocate—a Canadian periodical—says that other countries besides Canada realize the need of a law similar to Canada's "Pure Honey Bill," which was passed recently. A Belgian decree, which was to take effect from July 1, 1896, defines what is to be considered as honey, and regulates the sale of this commodity in the following manner:

"Under this law the name 'honey' is to be applied solely to the substance produced by bees from the nectar of flowers or other juices gathered from plants. Honey produced by bees fed with other substances (excepting such as are supplied to them as provision for winter) must bear a name indicating the material given to the bees, as, for instance, 'honey from sugar,' 'honey from glucose,' or 'mixed honey.'

"Honey substitutes and mixtures of honey with such substitutes, or with other foreign substances, must be denoted 'artificial honey,' or honey mixed with such and such substances, or some term not involving the word honey must be used.

"The sale of honey containing more than one per cent. of pollen, wax or other substances insoluble in water, or more than 0.5 per cent. of mineral matter, and all spilt honey, is prohibited. Vessels containing honey, or mixture of honey, etc., must be labeled in such manner as to specify the exact nature of the contents, as defined by the decree."

Good for old Belgium. After awhile may be the United States will awake from her long sleep, and give her people an anti-adulteration law that will protect not only the producers of genuine bees' honey, but also the honest products of other industries. We must keep up the agitation until we get all needful and just laws.

North American at Lincoln.—We have received the following letter from Mr. L. D. Stilson, of York, Nebr., referring to an editorial in a previous number:

FRIEND YORK:—On page 473, I see you are not worrying about the larders of the Nebraska people. That is right; we have enough and to spare. We want to see you Eastern bee-keepers come here and "GET FULL" once, and so we propose to "set up" free, something for the North American, or the visiting members outside our State. But let me say to you, right here, that before any can have a free lunch in Lincoln, they must settle their little yearly dues with the Secretary.

You see, I am a little interested in getting membership into the society, and a good deal interested in the protection of the larders of Lincoln.

Respectfully,

L. D. STILSON.

Yours is a good idea, Mr. Stilson, to allow only those who pay their annual membership dues (\$1.00), to participate in the fun of emptying those famous "Lincoln larders." Our dollar is ready, and, all being well, we'll try to do justice when we come to the "larder act."

But the idea of such a staid old temperance man as yourself, wanting to see Eastern bee-keepers "get full" when they come to Nebraska! Of course, if those "larders" are free from anything like "Whitcomb's celebrated metheglin"—that we imagine is more productive of "tipsiness" than old "forty-rod" is said to be—if you mean you want us to "get full" of just good eatables, and not questionable drinkables, why, it's all right. "Barkis is willin'."

New Bee-Papers.—One of the most ridiculous ideas recently published, is that put out by a fellow who accuses us of a jealous feeling because the Southland Queen was started about a year ago. Why, bless you, this is a free country, and if people want to sink any money in publishing, or subscribing for, new bee-papers, that's their business, not ours. But we feel that it is our affair to protect our subscribers, and save them from throwing away their money on something that is issued principally to boom a private business, or to gratify a desire to have a medium in which to show off the publishers' egotism and desire for notoriety.

Those who start new bee-papers seem not to know that during the past 20 years there have been perhaps 50 new

apiarian papers launched in this country, less than a half-dozen having survived, and scarcely one of them proving at all a financial success, aside from a means of furthering a bee-supply business. One reason for this is the fact that the field of bee-culture is limited, and there is neither the need nor the demand for a host of publications.

Again, we wish to say that if our permission is desired for the starting of a hundred new bee-papers, it will be freely given; but their publishers must not expect us to turn around and give them a lot of free advertising so that they can hope to live. We are here to make the American Bee Journal what it should be, and not for the purpose of aiding superfluous enterprises that some people make, and who have failed to "count the cost" before venturing.

By the way, the Southland Queen probably would not have been started had it not been for our dropping the Atchley folks from our columns. And as it was begun *immediately afterward*, it showed very plainly that they had been using the Bee Journal simply as a stepping-stone, for previous to their prominent appearance in our columns they were but little known, though having a bee-keeping experience. We have never objected to the starting of the Southland Queen, for that is none of our affair; but we dropped its publishers as Bee Journal correspondents and advertisers, for good and sufficient reasons, that are well known to those most interested.

Stray Staws, in Gleanings, are still trying to "show which way the wind blows." These appeared recently:

A good scratcher to scratch the surface of sealed honey so as to get the bees to empty it out is made of a piece of heavy wire cloth, three meshes to the inch. Possibly five to the inch would be better. Take a piece three or four inches square, and you'll find the edge where it is cut off just the thing to rake the surface.

Cases are reported in which swarms have issued with no sign of a queen-cell in the hive. I'm inclined to be mildly skeptical about this; at least, I have some doubt about such a case occurring unless the bee-keeper had baffled the intentions of the bees by previously removing queen-cells. The more bees are thwarted as to swarming, the more determined they sometimes are; and I can imagine their getting mad enough to swarm with no sign of a queen-cell. I've had many a case in which there was nothing further than an egg in a queen-cell.

A Very Neat Program is that issued by the Southwest Texas Bee-Keepers' Association, for their meeting at Beeville, on Sept. 16 and 17, 1896. Any one near enough to attend should send for a copy, to the Secretary, J. O. Grimsley, Beeville, Tex.

PERSONAL MENTION.

MR. CHAS. DADANT, of the firm of Chas. Dadant & Son, the well known comb foundation makers, made us a very pleasant call on Tuesday, July 28. He was on his way to Sturgeon Bay, Wis., where he goes annually for a month or so, in order to avoid an attack of hay-fever were he to remain at his home in Hancock county, Illinois.

Mr. Dadant says they have 325 colonies of bees now, and that they had extracted about 5,000 pounds of honey so far, with more to follow. One year they had 45,000 pounds from about the same number of colonies as they now have.

In speaking of beeswax, Mr. D. mentioned a very simple

test to detect adulteration. "Have a vial partly filled with water, into which is put a small piece of beeswax of known purity. Then pour in alcohol until the piece of beeswax sinks to the bottom of the vial. Now put in a piece of the beeswax you wish to test—if it floats it is adulterated; if it goes to the bottom it is all right.

When Mr. Dadant first came to this country, from France—over 30 years ago—he found on the bank of the Mississippi river a single, small plant of sweet clover. It was quite a distance from his home, but when it was time for the seed to be ripe, he went after it, and scattered it so that it might spread. Later he also gave some seed to a friend near Keokuk, across the river. By following up the practice he soon had a great deal of sweet clover growing, and in fact now it is pretty well spread over a good share of the States bordering on the Mississippi, and Mr. Dadant believes that much of it is the result of the one plant which he watched so carefully, and in due time scattered its seed. He values sweet clover very highly as a honey-plant.

Upon reaching the United States, Mr. Dadant and family were almost penniless. So both he and his good wife (who departed this life about a year ago) had to work hard in order to get along. They picked and sold blackberries about the first season, and from the money thus made, Mr. D. paid \$5.00 for an Italian queen—and she was not even a warranted one. Mrs. Dadant disavored paying \$5.00 thus, but said very little. But the next year Mr. D. sold some queens reared from her for \$10.00 each! He began with two colonies, and increased from year to year until the bees became his main source of revenue.

For a man 79 years of age, Mr. Dadant is remarkably well-preserved. In fact, we do not remember ever seeing him looking better than now. We wish him yet many happy years, in which we are sure the thousands who have read his practical and helpful articles in the Bee Journal will most heartily unite.

While this is rather a lengthy "personal mention," we think no one will object to it, or even feel slighted if they do not receive one of equal length when "their turn" comes.

MR. L. D. STILSON, of York, Nebr., in a letter dated July 27, says: "We have just had a two-days' session of the State Horticultural Society here at York. It was decidedly the best attended meeting ever held by the Society." That's good. We hope the same can be said of the North American convention at Lincoln, Oct. 7 and 8. Mr. Stilson will do his part to make it so, depend upon that.

MR. G. M. DOOLITTLE had two practical articles in the July American Bee-Keeper. What a prolific writer that man Doolittle is, anyway! Wonder when he finds time to work with the bees. It is surprising how much work one can "turn off" when accustomed to it. Shouldn't be surprised if Mr. D. has everything systematized, and, besides, writes a good deal at night.

MR. HASTY—the Review's "Reviewer"—says that he thinks "the foundation-cutting arrangement given on page 337 [of this paper] is one of the best that has been brought out." By the way, Mr. Hasty keeps up a very entertaining department in the Review.

HON. R. L. TAYLOR's interesting article on the subject of swarming, as reported in the July Review, will be found on page 500 of this number of the Bee Journal. Read it.

MR. GEO. E. HILTON, of Michigan, when writing on July 23, said: "My trade in hives, sections, foundation and shipping-cases is double any previous year at this date."

Questions AND Answers

CONDUCTED BY

DR. C. C. MILLER, MARENGO, ILL.

[Questions may be mailed to the Bee Journal, or to Dr. Miller direct.]

Cage for Hatching Queens.

Has there ever been anything in the way of a queen-cage to hatch queens from the cells about four days before the time for them to hatch, and keep them there until ready to be removed? If not, I have constructed one which is a success. If it is of any benefit to bee-keepers, they are welcome to it. Those that want to Italianize will find it very useful, and also to queen-breeders.

J. B. N.

ANSWER.—Yes, such things have been in use for some years. Some use compartments for the cells in the hive, each cell being enclosed separately at any time after being sealed. The queen-nursery is also used, the sealed cells being hatched by artificial heat.

Frame Crossbar Instead of Wiring.

If a frame 12 $\frac{1}{4}$ inches square inside has a triangular crossbar put through the center of it horizontally, would it be a hindrance or impediment to the queen in laying? The edge only would come to the outside of the comb, the balance being covered with comb. If this bar would not hinder the queen, wouldn't it be an improvement on that size of frame by stiffening it and holding the comb so there would be no necessity for wiring?

L. J. C.

ANSWER.—I doubt if it would make any difference to the queen. I think, however, I'd rather have the wire. A given number of bees could cover just that much less brood with the stick in the center, while the wire doesn't make any difference.

Lysol as a Cure for Foul Brood.

I saw in the Bee Journal something about lysol as a cure for foul brood. How can I find out about the treatment? and where will I find it?

J. B.

ANSWER.—Lysol is one of the many things that have been reported as successful in curing foul brood, but in this country drugs are not in favor as foul brood cures. Indeed, I think the Roots and others who have had much experience with foul brood, insist that no drug will effect a cure, any drug strong enough to kill the bacilli being strong enough to kill the bee. Lysol is a coal-tar product, and your druggist ought to be able to get it for you. I think it is used mixed with the food given to the bees, but I don't know the proportions. Some time ago it was mentioned as a cure in the German bee-journals, but lately I've seen nothing about it.

Saving Bees from Brimstoning.

My uncle is going to kill some of his colonies of bees for their honey. Is there any way I can work my two colonies to get extra stores to put some of his on? No. 1 is a strong colony, but is not in a dovetailed hive, but I can put a dovetailed hive on top. No. 2 is in a dovetailed hive, but will store only enough honey for their own use, if that. How would you do under the same conditions? No. 2 is the colony that I asked about on page 295. They were queenless.

C. C.
Belleville, Mich.

ANSWER.—Yes, if honey is yielding so that bees are laying up a surplus, there need be no difficulty in getting frames filled ready to put in the bees from your uncle's hives. People that kill bees in the fall to get the honey generally put it off too long. Unless in a place where the fall yield is good, more honey will be got by killing the bees now than by waiting till

all the honey-plants are frozen up. Of course you would have a better chance to get the bees in good shape for winter—if any one objects to the word "shape," please see definition 7 in Standard Dictionary—if you can have them early. If you can get the bees to fill up some of the frames in the dovetailed hive, then you can keep them in readiness for the doomed bees. If honey doesn't yield, you can still get the frames filled by feeding. Put the dovetailed hive over your colony, use the crock-and-plate method, and you can have the frames nicely filled. Of course, if you want the best kind of combs you'll use worker foundation in the frames. If you should get the bees early enough you might get them to fill their own frames by feeding, but it may be the safest thing to have them ready in advance. By feeding you can also get the weaker colony to help in the work.

Moths—Clipped Queen—Mustard Honey.

1. I raise my hive from the bottom and block it up when the bees are slow in going up into the supers. Now, would not the moth have a better chance at this raised hive?

2. Suppose a colony is swarming, and the queen's wing is clipped, and you don't watch it closely, wouldn't the queen be liable to be lost?

3. Do the bees gather any honey from wild mustard, or such as grows in the grain-fields? What flavor is it? We also get some honey from golden-rod when favorable.

Canton, S. Dak.

L. A. S.

ANSWERS.—1. On the contrary, with a strong colony the moth wouldn't have so good a chance to get in her work. When the hive is down on the bottom-board, the moth has a good chance to lay eggs in the cracks left under the hive, and they also make a good hiding-place for the worms. If a colony is weak enough, raising the hive might leave the lower edges of the combs unprotected by bees, but such weak hives do not generally have supers given them.

2. Generally the queen will go back into the hive, but part of them will be lost. But in a case where the swarm would come out unobserved, and the queen be lost, if the queen were not clipped both queen and swarm would be lost.

3. Yes, the bees get both honey and pollen from it. It's much the same as rape, which is a great honey-plant in Europe, bee-keepers often taking their bees to the rape-fields. I don't know the quality of the honey, but think it is dark and not of the best quality.

Position of Supers—Making a Swarm Stay.

1. When you put on the supers with enclosed sections, do you set it directly on top of the brood-frames, or do you raise it a little?

2. When you have a swarm do you pull off the surplus boxes, and get a frame of brood each and every time? I may be asking foolish questions, but I have been told that when I have a swarm, that in order to be sure that they won't leave, to take a frame of brood and then they won't leave. I had a swarm issue this spring, and I hived them twice the day they came out, and once the second day, and then the third day they came out and went to the woods. Do you know what made them leave? I had them hived in a new chaff hive with starters in the brood-frames.

W. J. E.

ANSWERS.—1. A space of one-fourth inch is left between the top-bars and the sections. You can set the sections directly on the top-bars, but in that case the bees will glue the two together, and you will have trouble in getting off the sections as well as having them daubed with glue.

2. I so seldom hive a natural swarm that my own practice counts for little. A. I. Root says a frame of brood is a sure preventive of desertion, and if I am correct G. M. Doolittle says a frame of brood is pretty sure to make the swarm leave. I don't know just how it is, but I suspect there is truth mixed up on both sides, and that under some circumstances brood will have a tendency to make bees leave. In the great majority of cases heat is probably to blame for the desertion of swarms. If you hive a swarm in a hive standing in a shady place, no surplus boxes on for two or three days, with the hive well ventilated, you will stand a good chance of having the swarm stay. Don't be satisfied with ordinary ventilation. Besides seeing that the hive is open below, let it be partly uncovered on top.

See "Bee-Keeper's Guide" offer on page 510.

General Items.

Did Well This Year.

Bees have done well here this year; I will send my report later. I could not get along without the Bee Journal.

W. A. SAUL.

Denison, Iowa, July 24.

Report for the Season So Far.

My bees have increased from 40 colonies, spring count, to 100 now. I have taken 5,000 pounds of honey. I like the Bee Journal very much.

MARK G. WILLIAMS.

Corbetton, Ont., July 27.

Bees Did Well.

Bees have done well, and the honey crop for 1896 is about over. I had 12 colonies, spring count, and increased four. I have extracted from 13 colonies an average of 65 pounds, almost all basswood, which blossomed about 12 days. I lost one colony last winter. The Bee Journal is a great help to me. There are about 250 colonies of bees in this part of the country.

AUG. F. KRUEGER.

Salter, Wis., July 27.

Has a Fine Location for Bees.

It will soon be three years since I first began to take the American Bee Journal, and I have every number but one. I am glad to say that the American Bee Journal is my favorite, and the only paper that always gets here on time. I have only five colonies of bees, but I will soon increase my stock. This is one of the finest locations for bee-keeping in Oregon, and I am satisfied I can make it pay here, with the great help I get out of the Bee Journal.

P. RUDDIMAN.

Mist, Oreg., July 24.

Poisonous Honey—Wild Parsnip.

Referring to my article on poisonous honey (page 245), in regard to the plant, called wild parsnip, which grows in this section in great profusion, it has, on investigation, proven not to be the poisonous species, but is said to have originated from the common or table parsnip, it having a yellow blossom, while the poisonous one has a white blossom. I have mailed a specimen to the United States Department of Agriculture, Division of Botany, Washington, D. C., and requested a report.

Reinersville, Ohio. J. A. GOLDEN.

Expect a Fair Crop.

Our season is very late this year, and although our bees could not work at all on the fruit-bloom, on account of the wet weather, I think we will get a fair crop, as I never saw so much white clover as I have seen this year. Up to June 11 it was wet and cold, but after that fair weather came, and all green fields began to whiten until some of the pastures were actually white, and on the glorious Fourth the bees had filled up everything below, and were sending out swarms about as fast as I could

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The NOVELTY KNIFE is indeed a novelty. The novelty lies in the handle. It is made beautifully of indestructible celluloid, which is as transparent as glass. Underneath the celluloid, on one side of the handle is placed an AMERICAN BEE JOURNAL reminder, and on the other side, name and residence of the Subscriber.

The material entering into this celebrated knife is of the very best quality; the blades are handforged out of the very finest English razor-steel, and we warrant every blade. The bolsters are made of German silver, and will never rust or corrode. The rivets are hardened German silver wire; the linings are plate brass; the back springs of Sheffield spring steel, and the finish of handle as described above. It will last a lifetime, with proper usage.

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The accompanying cut gives a faint idea, but cannot fully convey an exact representation of this beautiful knife, as the "Novelty" must be seen to be appreciated.

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HENRY ALLEY, Wenham, Mass.

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8A26t J. D. GIVENS, Lisbon, Tex.

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30Etf FT. JENNINGS, OHIO.

handle them, with the mercury 80° in the shade. Although this would seem late for swarming in the East, it doesn't cut so much of a figure in this section of the country, as the season continues until September, usually, and I have had a swarm come out in the middle of August and gather enough to winter on, but of course we do not depend entirely upon white clover, as we have lots of fireweed for the latter part of the season. F. M. LITTLE.

Junction City, Wash., July 21.

Doing Fairly Well—Big Yield.

Bees are doing fairly well here, but not nearly so well as last season, when I got 263 pounds of honey per colony, spring count, two-thirds extracted and one-third comb honey. A. J. WEST.

Paxton, Ill., July 20.

Must Feed to Save the Bees.

I shall have to feed from 5,000 to 10,000 pounds of sugar to save my bees this year. I have already fed 2,000 pounds. I do not shed any tears, but rejoice with those who have some honey, that there will be a sale for it.

Acton, Calif., July 20. F. J. FARR.

Not a Good Season.

I don't expect much honey this year, as we have had no honey season. April and May were very dry—we had no rain at all. June gave us rain nearly every day, consequently there was an extreme every time. There was plenty of locust bloom, but owing to dry weather bees did not work on it. There has not been much swarming here, and our swarming-season is over for this year. We are having plenty of rain now, and I hope we will get some honey yet, before the summer ends. When I have gathered my honey harvest, I will report again. I cannot keep bees without the American Bee Journal. C. H. MAY.

Grove Hill, Va., July 22.

Good Prospects for a Large Crop.

I had promised last fall to report again this season how my bees were doing. I had in my yard 35 colonies last fall, in good condition; some were rather weak in bees on account of their late swarming, the old bees mostly all having gone with the swarms, and by the time the young queens were ready to lay the honey-flow was about over, and very few young bees were reared, which accounts for some of the winter losses I had. All had enough honey and some to spare.

I had about half of the 5-banded golden Italian stock, and the rest were 3-banded and hybrids. Of the 5-banded kind I had the pleasure of finding one colony alive this spring, and the queen of that colony came from Canada, and her chances last fall were mighty slim for successful wintering. Some of the other 5-banded did not live to celebrate Christmas, and one after the other passed away until only one remained.

Of the 3-banded kind, I found all alive this spring but one colony, which became queenless in December, and the bees, hunting for the queen, flew out of the hive and were chilled, never to get back into the hive.

The hybrids winter as well as the 3-

Honey-Clovers & Buckwheat SEED FOR SALE.

We have made arrangements so that we can furnish seed of several of the Clovers and Japanese Buckwheat, by freight or express, at the following prices, cash with order.

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Alsike Clover	\$.70	\$1.25	\$3.00	\$5.75
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and have the latest and most improved machinery for the manufacture of Bee-Hives, Sections, etc., that there is in the State. The material is cut from patterns, by machinery, and is absolutely accurate. For Sections, the clearest and

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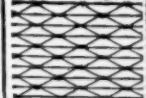
is used, and they are polished on both sides. Nearness to pine and basswood forests, and possession of mills and factory equipped with best machinery, all combine to enable this firm to furnish the best goods at

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For instance, it has a job lot of 200,000 No. 2 Sections that will be sold at 50 cts. per 1,000; or 2,000 Snow-White sections will be sold for \$4.00, and larger quantities at still lower prices. Send for Circular and see the prices on a full line of supplies. 16Atf

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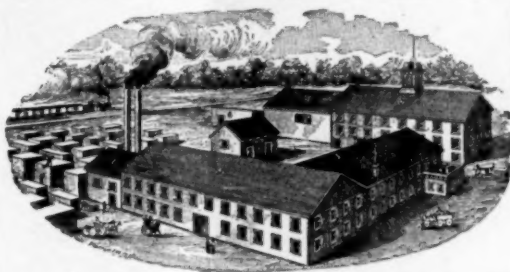
10 per ct. Off to Reduce Stock

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banded, but are too cross; I can't handle them—must Italianize them.

White clover was very scarce here this year, but my bees had several fields of alsike which yielded well. Basswood is scarce, but it yielded very much honey; also the chestnut did well. Now comes buckwheat, and the prospects are good for a large crop of honey. I now have in my yard 37 colonies, ready for business. I winter them out-doors. Last winter was an extra hard one, killing nearly all the clover and wheat in this section.

PAUL WHITEBREAD.

Hobbie, Pa., July 24.

Good Fall Crop Expected.

The prospects are good for a fall crop of honey. Sweet clover is in full bloom, and bees are working on it in good shape. White clover was quite plentiful this year, but yielded very little honey—just enough to get bees in good condition for sweet clover and golden-rod.

R. E. QUICK.

Clare, Iowa, July 24.

Adulteration—Foul Brood.

I have read with much interest the program of the North American convention, especially that part relating to amalgamation and the adulteration of honey. This is one of the great questions, in fact, I might say, the principal one, that is agitating the minds of many bee-keepers. Supply and demand cut very little figure as long as this fraud of adulteration is allowed to be practiced on the bee-keepers, or the producers, and the consumers. I have received reliable information that it is continually practiced; it runs down the price of pure honey out of sight for the producer. Then when the glucose mixer gets in his work, who can figure out to us the total collected from the consumers? Is there no end to this abuse? Must we always grin and bear it? If so, why could not, and should not, every State have a law for the protection of the bee industry and public? I am pleased to see this part of the program in good hands, and I hope to see our grand old American Bee Journal keep up this fight until the rascals are crowded out, and honest people get their just due.

There are two very important subjects which I fail to see on the program, namely, Foul Brood and the Spraying of Fruit-Trees. Both of these have been, and are, causing much loss to bee-keepers. I have had much experience on these questions in the past four or five years. While there have been many foul brood laws framed, I believe that more good can be accomplished in the matter by educating bee-keepers. Too

many bee-keepers do not know what foul brood is. I have known bee-keepers actually to divide foul brood colonies! Others will let the ants destroy their bees, and not know of it until it is too late. It is also the same with fruit-tree spraying. They only realize it when the hives are empty. Among the many experiments that I have been trying for foul brood is one that I hope to prove a success. It is a mixture of salt and other ingredients. While I do not care to get laughed at, if I prove anything reliable in this matter, I will be pleased to give the information.

E. S. LOVESY.

Salt Lake City, Utah.

The Hive Discussion.

It seems to me that as interesting and valuable topic as could be desired is the bee-hive, its size and shape of brood-chamber, etc. While this topic received a great deal of attention from most of the prominent apiarists of the country, I, for one, shall consider the discussion incomplete so long as the standard Langstroth frame remains standard. I have experimented enough with this frame and hive to know whereof I speak, and my experiments are confirmed by hundreds of practical and observing apiarists all over the land.

There are many who think that locality has so much to do with the hive used. This is, to quite an extent, a mistake, if a good hive is adopted. For instance, where did the Dadant hive ever fail? I could also refer to a couple others equally good, but there name is not "standard Langstroth." The manufacturers and our authors are the ones that raised the Langstroth hive and frame to such a high standard, but most of these people received quite an unexpected shock the past season, and many are beginning to realize their mistakes, but they do not seem in haste to speak out. There is one, however, for whom I have always had great respect, and who, I believe, is still riding the fence-rail. He is also well known to the readers of the American Bee Journal, or any other journal pertaining to apiculture. He is Dr. C. C. Miller.

Right here I want to say that I heartily endorse the first paragraph of Mr. C. P. Dadant's article, on page 433, concerning the Doctor's motto, etc. Now, who can tell what made the Doctor ask Messrs. Dadant & Son the questions he there asks, if he is not losing some faith in his hive? And also notice how the Doctor answered the 4th question of W. S., on pages 470-71.

It is to the editor's interest, to the manufacturers' interest, and to the interest of all who wish to see our frater-

nity and our favorite pursuit prosper, to go on and advise and use only the best regardless of expense.

I hope that this important question will be allowed more space and attention. Findlay, Ohio. JOSEPH THIRY.

P. S.—I would be glad to hear from Dr. Miller, through the Bee Journal, concerning his present opinion of the hive discussion. J. T.

Question-Box.

In the multitude of counsellors there is safety.—Prov. 11-14.

Proper Space from Center to Center of Brood-Frames.

Query 24.—What is the proper bee-space in the brood-chamber, allowing and using 1-inch wide frame for brood-comb? Or, what is the proper spacing from center to center of such frames to obtain the best results?—GARDEN CITY.

W. G. Larrabee—1½ inches.
Chas. Dadant & Son—1½ inches.
G. M. Doolittle—I use 1½ inches.
B. Taylor—¼ inch. I use 1½ inches.
W. R. Graham—Not quite 1½ inches.
E. France—From center to center, 1½ inches.

Mrs. L. Harrison—1½ inches from center to center.

Prof. A. J. Cook—I use 1½ inches from center to center.

C. H. Dibbern—1½ inches is the proper bee-space.

James A. Stone—1½ inches from center to center, I think.

R. L. Taylor—1½ inches from center to center—less, rather than more.

Eugene Secor—Slightly less than 1½ inches from center to center of frame.

H. D. Cutting—1 5/16 to 1¾ makes a good distance from center to center of frames.

J. M. Hambaugh—I have used 1½ inches from center to center, and believe it to be the best.

Dr. J. P. H. Brown—1 7/16 inches from the center of one frame to the center of the next is nearly right.

P. H. Elwood—The tendency seems to be toward 1¾ inches from center to center. The larger part of ours are 1½ inches.

Emerson T. Abbott—¼ inch is the proper bee-space between the frames, above the frames, and at the end of the frames.

Dr. C. C. Miller—1¾ seems to be the standard from center to center, and it's certainly good; but 1½ may be just as good.

Rev. M. Mahin—Do you mean to ask one question, or two? I space my frames 1½ inches from center to center. As the frames are movable, there is not exact uniformity in the spacing.

J. E. Pond—With a one-inch wide frame, I should give about ½ inch space between the top-bars; by so doing, and spacing evenly, the filled combs will be as nearly "bee-space" apart as possible, and which spacing I consider correct.

G. W. Demaree—From 1¾ to 1¾

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Or Manual of the Apiary,

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Send us **Two New Subscribers** to the Bee Journal (with \$2.00), and we will mail you a copy of Prof. Cook's book FREE as a premium. Prof. Cook's book alone sent for \$1.25, or we club it with the Bee Journal for a year—both together for only \$1.75. But surely anybody can get only 2 new subscribers to the Bee Journal for a year, and thus get the book as a premium. Let everybody try it. Will you have one?

GEORGE W. YORK & CO.,
CHICAGO, ILLS.

A Bargain—EARLY QUEENS.

119 Colonies Italian Bees in Chaff Hives: two acres land; good house; excellent well.

Early Queens—Tested, \$1.00; Untested, 50c. Sent by return mail.

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inches, from center to center of the brood-frames. To be exact is not material. If you use fixed frames (I don't like them), plump 1¾ is nearly right for brood-combs. 1¾ is better for taking honey with the honey-extractor.

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Convention Notices.

TEXAS.—The Central Texas Bee-keepers' Association meets at Cameron, Tex., Aug. 7 and 8, 1896. No hotel bills to pay.

C. B. BANKSTON, Cor. Sec.
Chriesman, Tex.

TEXAS.—The third annual convention of the Southwest Texas Bee-keepers' Association will be held at Beeville, Tex., on Sept. 16 and 17, 1896. All are invited. No hotel bills to pay. Low rates on railroads.
Beeville, Tex. J. O. GRIMSLEY, Sec.

MINNESOTA.—The annual meeting of the Southern Minnesota Bee-keepers' Association will be held in Winona, on September 21 and 25, 1896, at 9 o'clock, a.m. All that feel in any way interested in bees or honey are cordially invited to attend.
Winona, Minn. E. C. CORNWELL, Sec.

ILLINOIS.—The annual meeting of the Northern Illinois Bee-keepers' Association will be held at the residence of B. Kennedy, 3 miles northeast of New Milford, Ill., on Tuesday, Aug. 18, 1896. All are cordially invited, and I will meet any one at the train in New Milford if they will drop me a card.
New Milford, Ill. B. KENNEDY, Sec.

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HONEY and BEESWAX

MARKET QUOTATIONS.

The following rules for grading honey were adopted by the North American Bee-Keepers' Association, and, so far as possible, quotations are made according to these rules:

FANCY.—All sections to be well filled; combs straight, of even thickness, and firmly attached to all four sides; both wood and comb unsoiled by travel-stain, or otherwise; all the cells sealed except the row of cells next the wood.

No. 1.—All sections well filled, but combs uneven or crooked, detached at the bottom, or with but few cells unsealed; both wood and comb unsoiled by travel-stain or otherwise.

In addition to this the honey is to be classified according to color, using the terms white, amber and dark. That is, there will be "fancy white," "No. 1 dark," etc.

Chicago, Ills., Aug. 1.—We quote: Fancy: white clover, 15c.; No. 1 white, 12@13c.; fancy amber, 10@11c.; No. 1 amber, 7@9c.; fancy dark, 9@10c.; No. 1 dark, 7c. Extracted, white, 5@7c.; amber, 5@5½c.; dark, 4½@5c. Beeswax, 25@27c.

The month closes with some offerings of new comb honey, for which 14-15c. is asked for best lots—but there are no sales of consequence to report. There is usually a good deal of it moved in August, thus establishing the early market.

Philadelphia, Pa., July 10.—No. 1 amber, 9-10c.; fancy dark, 8-9c.; No. 1 dark, 7-8c. Extracted, white, 8-10c.; amber, 5-5½c.; dark, 3½-4c. Beeswax, 25-26c.

Honey very dull. Beeswax in fair demand.

Buffalo, N. Y., July 24.—Fancy comb, 1-pound, 12-14c.; No. 2, 9-10c.; No. 3, 4-8c. Extracted, 3-5c., as to quality. It is folly to ship honey unless properly packed. Good results depend on it and quality.

Cincinnati, Ohio, July 10.—No. 1 white, 13@14c.; fancy amber, 12@13c.; No. 1 amber, 10@12c. White, extracted, 5@7c.; amber, 5@6c.; dark, 3½-5c. Beeswax, 20-25c.

New York, N. Y., June 24th.—No demand for comb honey of any kind. New crop of southern extracted is arriving freely, and sells fairly good at 50@52c. per gallon for common, and 55@60c. per gallon for better grades. Beeswax dull at 26@27c.

Cleveland, Ohio, July 9.—We quote: Fancy white, 15@16c.; No. 1 white, 14@15c.; fancy amber, 10@11c. Extracted, white, 6@6½c.; amber, 4@5c. Beeswax, 20@25c.

Our market is nearly bare of honey. We think early shipments would meet with ready sales at about quotations.

St. Louis, Mo., July 9.—We quote: Fancy white, 11½@12c.; No. 1 white, 10½@11c.; fancy amber, 10@10½c.; No. 1 amber, 9@10c.; fancy dark, 8½@9c.; No. 1 dark, 7@8c. Extracted, white, in cans, 5c.; in barrels, 4c.; amber, 3½@4c.; dark, 3@3½c. Beeswax, 25@25½c.

This week we sold 4,700 pounds of Southern extracted in barrels at 3½c. Honey is in fair demand. Very little fancy new comb coming in, and what has been offered not well cured as yet.

Minneapolis, Minn., July 9.—We quote: Fancy white, 15c.; No. 1 white, 13@14c.; fancy amber, 10@12c.; No. 1 amber, 8@10c.; fancy dark, 7@9c.; No. 1 dark, 8c. Extracted, white, 5½@6½c.; amber, 5½@5¾c.; dark, 4½@5½c. Beeswax, 26@28c.

Actual transactions both in comb and extracted very light. Minnesota and Wisconsin comb will commence arriving in moderate quantities about August, and will probably supply the market until cool weather, which usually stimulates a demand. Considerable extracted is now here on the spot, sufficient to supply immediate wants.

San Francisco, Calif., July 22.—White comb, 11-12½c.; amber, 7½-10c. Extracted, white, 5-5½c.; light amber, 4½-4¾c.; amber colored and candied, 3½-4c.; dark tulle, 2½-3c.

Stocks in this center are small, and a considerable proportion of the honey now here is of the crop of 1895. There will be little California honey this season; but with an absence of export demand, supplies may prove ample.

Beeswax, fair to choice, 22-26c. There is a tolerably wide range in values and a correspondingly wide range in the quality of the offerings.

Milwaukee, Wis., July 13.—No. 1 white, 12-13c.; No. 1 amber, 8-10c. Extracted, white, 7-7½c.; amber, 6-6½c.; dark, 5-6c. Beeswax, 20-24c.

The supply of honey is not large and nearly all old crop, as the receipts of new are extracted; quality fair. The demand is limited, as the supply of small fruits is large and the consumption of honey is small. The market will be in good condition for shipments of the new crop, both comb and extracted, and we look for a good demand later.

Albany, N. Y., Aug. 1.—Fancy white, 13-14c.; No. 1, 12-13c.; No. 1 amber, 11-12c. We have received a number of consignments of new comb honey, mostly white, and a great many letters from producers, asking if they should forward their honey as soon as it was ready. There is but very little demand for honey during hot weather and it creates an unfavorable impression on the trade to see a large stock of honey standing around. September 1 is time enough to forward comb honey. We look for a large crop of white honey and prices lower than last season.

Detroit, Mich., July 13.—No. 1 white, 11-12½c.; fancy amber, 10-11c.; No. 1 amber, 9-10c.; fancy dark, 8-9c.; No. 1 dark, 7-8c. Extracted, white, 6-7c.; amber, 5-6c.; dark, 5c. Beeswax, 24-25c.

There is very little old honey on the market that is desirable. New honey will sell slowly in this market until October.

Indianapolis, Ind., July 26.—Fancy white 15-16c.; No. 1 white, 13-14c. Extracted, white, 6-7c. Beeswax, 25-27c.

No demand at all for off grades of either comb or extracted honey. Large fruit crop and warm weather are opponents to the demand for honey at present.

Boston, Mass., July 15.—Fancy white, 14-15c.; No. 1 white, 12-13c.; fancy amber, 9-10c. Extracted, white, 6-7c.; amber, 5-6c. Beeswax, 25-26c.

Fancy new white honey now in stock; demand fair. Old stock nearly closed out.

Kansas City, Mo., July 20.—Fancy white comb, 15c.; No. 1 white, 13@14c.; fancy amber, 12-13c.; No. 1 amber, 11-12c.; fancy dark, 10-11c.; No. 1, 8-10c. Extracted, white, 6-6½c.; amber, 5 ½c.; dark, 4-4½c. Beeswax, 22-25c.

List of Honey and Beeswax Dealers.

Most of whom Quote in this Journal.

Chicago, Ills.

R. A. BURNETT & Co., 163 South Water Street.

New York, N. Y.

HILDRETH BROS. & SEGELKEN,
120 & 122 West Broadway
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BATTERSON & Co., 167 & 169 Scott St.

Hamilton, Ills.

CHAS. DADANT & SON.

Philadelphia, Pa.

WM. A. SELSER, 10 Vine St.

Cleveland, Ohio.

WILLIAMS BROS., 80 & 82 Broadway.

St. Louis, Mo.

WESTCOTT COM. CO., 213 Market St.

Minneapolis, Minn.

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Milwaukee, Wis.

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Albany, N. Y.

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Cincinnati, Ohio.

C. F. MUTH & SON, cor. Freeman & Central avs.



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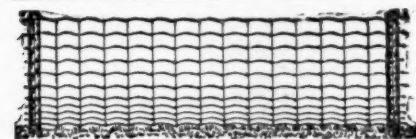
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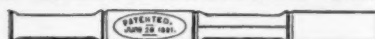
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